



Agency for Healthcare Research and Quality  
Advancing Excellence in Health Care



NATIONAL  
**GUIDELINE**  
CLEARINGHOUSE

## General

### Guideline Title

Clinical policy: critical issues in the initial evaluation and management of patients presenting to the emergency department in early pregnancy.

### Bibliographic Source(s)

Hahn SA, Lavaras EJ, Mace SE, Napoli AM, Fesmire FM, American College of Emergency Physicians. Clinical policy: critical issues in the initial evaluation and management of patients presenting to the emergency department in early pregnancy. Ann Emerg Med. 2012 Sep;60(3):381-90.e28. [55 references] [PubMed](#)

### Guideline Status

This is the current release of the guideline.

This guideline updates a previous version: Clinical policy: critical issues in the initial evaluation and management of patients presenting to the emergency department in early pregnancy. Ann Emerg Med 2003 Jan;41(1):123-33.

## Recommendations

### Major Recommendations

Definitions for the strength of evidence (Class I-III) and strength of recommendations (Level A-C) are repeated at the end of the Major Recommendations field.

1. Should the emergency physician obtain a pelvic ultrasound in a clinically stable pregnant patient who presents to the emergency department (ED) with abdominal pain and/or vaginal bleeding and a  $\beta$ -human chorionic gonadotropin ( $\beta$ -hCG) level below a discriminatory threshold?  
Patient Management Recommendations

*Level A recommendations.* None specified.

*Level B recommendations.* None specified.

*Level C recommendations.* Perform or obtain a pelvic ultrasound for symptomatic pregnant patients with a  $\beta$ -hCG level below any discriminatory threshold.

2. In patients who have an indeterminate transvaginal ultrasound, what is the diagnostic utility of  $\beta$ -hCG for predicting possible ectopic pregnancy?  
Patient Management Recommendations

*Level A recommendations.* None specified.

*Level B recommendations.* Do not use the  $\beta$ -hCG value to exclude the diagnosis of ectopic pregnancy in patients who have an indeterminate ultrasound.

*Level C recommendations.* Obtain specialty consultation or arrange close outpatient follow-up for all patients with an indeterminate pelvic ultrasound.

3. In patients receiving methotrexate for confirmed or suspected ectopic pregnancy, what are the implications for ED management?  
Patient Management Recommendations

*Level A recommendations.* None specified.

*Level B recommendations.* (1) Arrange outpatient follow-up for patients who receive methotrexate therapy in the ED for a confirmed or suspected ectopic pregnancy. (2) Strongly consider ruptured ectopic pregnancy in the differential diagnosis of patients who have received methotrexate and present with concerning signs or symptoms.

*Level C recommendations.* None specified.

#### Recommendations from the 2003 Clinical Policy

Is the administration of anti-D immunoglobulin indicated among Rhesus (Rh)-negative women during the first trimester of pregnancy with threatened abortion, complete abortion, ectopic pregnancy, or minor abdominal trauma?

*Level A recommendations.* None specified.

*Level B recommendations.* Administer 50  $\mu$ g of anti-D immunoglobulin to Rh-negative women in all cases of documented first trimester loss of established pregnancy.

*Level C recommendations.* Consider administration of anti-D immunoglobulin in cases of minor trauma in Rh-negative patients.

Note: The patient management recommendations for this question remain unchanged and are not discussed in further detail in the policy update.

#### Definitions:

Strength of Evidence

#### *Literature Classification Schema\**

Design/ Class	Therapy <sup>†</sup>	Diagnosis <sup>‡</sup>	Prognosis <sup>§</sup>
1	Randomized, controlled trial or meta-analysis of randomized trials	Prospective cohort using a criterion standard or meta-analysis of prospective studies	Population prospective cohort or meta-analysis of prospective studies
2	Nonrandomized trial	Retrospective observational	Retrospective cohort Case control
3	Case series Case report Other (e.g., consensus, review)	Case series Case report Other (e.g., consensus, review)	Case series Case report Other (e.g., consensus, review)

\*Some designs (e.g., surveys) will not fit this schema and should be assessed individually.

<sup>†</sup>Objective is to measure therapeutic efficacy comparing interventions.

<sup>‡</sup>Objective is to determine the sensitivity and specificity of diagnostic tests.

<sup>§</sup>Objective is to predict outcome including mortality and morbidity.

#### *Approach to Downgrading Strength of Evidence\**

	Design/Class		
Downgrading	1	2	3
None	I	II	III
1 level	II	III	X
2 levels	III	X	X
Fatally flawed	X	X	X

\*See the "Description of Methods Used to Analyze the Evidence" field for more information.

#### Strength of Recommendations

Level A recommendations. Generally accepted principles for patient management that reflect a high degree of clinical certainty (i.e., based on strength of evidence Class I or overwhelming evidence from strength of evidence Class II studies that directly address all of the issues)

Level B recommendations. Recommendations for patient management that may identify a particular strategy or range of management strategies that reflect moderate clinical certainty (i.e., based on strength of evidence Class II studies that directly address the issue, decision analysis that directly addresses the issue, or strong consensus of strength of evidence Class III studies)

Level C recommendations. Other strategies for patient management that are based on Class III studies, or in the absence of any adequate published literature, based on panel consensus.

There are certain circumstances in which the recommendations stemming from a body of evidence should not be rated as highly as the individual studies on which they are based. Factors such as heterogeneity of results, uncertainty about effect magnitude and consequences, and publication bias, among others, might lead to such a downgrading of recommendations.

## Clinical Algorithm(s)

None provided

## Scope

## Disease/Condition(s)

- Abdominal pain and/or vaginal bleeding in the first trimester of pregnancy (also referred to as "early pregnancy")
- Ectopic pregnancy

## Guideline Category

Diagnosis

Evaluation

Management

Treatment

## Clinical Specialty

Emergency Medicine

Family Practice

Internal Medicine

Obstetrics and Gynecology

## Intended Users

Physicians

## Guideline Objective(s)

- To update the 2003 *Clinical policy: critical Issues in the initial evaluation and management of patients presenting to the emergency department in early pregnancy*
- To derive evidence-based recommendations to help clinicians answer the following critical questions:
  - Should the emergency physician obtain a pelvic ultrasound in a clinically stable pregnant patient who presents to the emergency department (ED) with abdominal pain and/or vaginal bleeding and a beta human chorionic gonadotropin ( $\beta$ -hCG) level below a discriminatory threshold?
  - In patients who have an indeterminate transvaginal ultrasound, what is the diagnostic utility of  $\beta$ -hCG for predicting possible ectopic pregnancy?
  - In patients receiving methotrexate for confirmed or suspected ectopic pregnancy, what are the implications for ED management?

## Target Population

Patients presenting to the emergency department in early pregnancy

## Interventions and Practices Considered

### Diagnosis/Evaluation

1. Assessment of serum  $\beta$ -human chorionic gonadotropin (hCG) levels
2. Pelvic ultrasound

### Management/Treatment

1. Specialty consultation or close outpatient follow-up for patients with an indeterminate pelvic ultrasound
2. Methotrexate
3. Anti-D immunoglobulin
4. Outpatient follow-up for patients who receive methotrexate in the emergency department

## Major Outcomes Considered

- Incidence of ectopic pregnancy
- Sensitivity and specificity of diagnostic tests
- Incidence of treatment failure
- Need for surgery for ruptured ectopic pregnancy
- Adverse effects of treatment

## Methodology

### Methods Used to Collect/Select the Evidence

Hand-searches of Published Literature (Primary Sources)

Hand-searches of Published Literature (Secondary Sources)

Searches of Electronic Databases

## Description of Methods Used to Collect/Select the Evidence

This clinical policy was created after careful review and critical analysis of the medical literature. Multiple searches of MEDLINE and Google Scholar were performed. All searches were limited to English-language sources and human studies. Specific key words/phrases and years used in the searches are identified under each critical question in the original guideline document. In addition, relevant articles from the bibliographies of included studies and more recent articles identified by committee members and reviewers were included.

## Number of Source Documents

Not stated

## Methods Used to Assess the Quality and Strength of the Evidence

Weighting According to a Rating Scheme (Scheme Given)

## Rating Scheme for the Strength of the Evidence

Strength of Evidence

*Literature Classification Schema\**

Design/ Class	Therapy <sup>†</sup>	Diagnosis <sup>‡</sup>	Prognosis <sup>§</sup>
1	Randomized, controlled trial or meta-analysis of randomized trials	Prospective cohort using a criterion standard or meta-analysis of prospective studies	Population prospective cohort or meta-analysis of prospective studies
2	Nonrandomized trial	Retrospective observational	Retrospective cohort Case control
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\*Some designs (e.g., surveys) will not fit this schema and should be assessed individually.

<sup>†</sup>Objective is to measure therapeutic efficacy comparing interventions.

<sup>‡</sup>Objective is to determine the sensitivity and specificity of diagnostic tests.

<sup>§</sup>Objective is to predict outcome including mortality and morbidity.

*Approach to Downgrading Strength of Evidence\**

	Design/Class		
Downgrading	1	2	3
None	I	II	III

1 level	II Design/Class	III	X
2 levels	III	X	X
Downgrading	I	2	3
Fatally flawed	X	X	X

\*See the "Description of Methods Used to Analyze the Evidence" field for more information.

## Methods Used to Analyze the Evidence

Systematic Review with Evidence Tables

### Description of the Methods Used to Analyze the Evidence

All articles used in the formulation of this clinical policy were graded by at least 2 subcommittee members for strength of evidence. The articles were classified by the subcommittee members into 3 classes of evidence on the basis of the design of the study, with design 1 representing the strongest design and design 3 representing the weakest design for therapeutic, diagnostic, and prognostic clinical reports, respectively (see the "Rating Scheme for the Strength of the Evidence" field). Articles were then graded on dimensions related to the study's methodological features, including but not necessarily limited to randomization processes, blinding, allocation concealment, methods of data collection, outcome measures and their assessment, selection and misclassification biases, external validity, generalizability, and sample size. Articles received a final grade (Class I, II, III) on the basis of a predetermined formula, taking into account the design and study quality (see the "Rating Scheme for the Strength of the Evidence" field). Articles identified with fatal flaws or that were not relevant to the critical question received an "X" grade and were not used in formulating recommendations for this policy. Grading was done with respect to the specific critical questions; thus, the level of evidence for any one study may vary according to the question. As such, it was possible for a single article to receive different levels of grading as different critical questions were answered from the same study. Question-specific level of evidence grading may be found in the Evidentiary Table at the end of the original guideline document.

## Methods Used to Formulate the Recommendations

Expert Consensus

### Description of Methods Used to Formulate the Recommendations

This policy is a product of the American College of Emergency Physicians (ACEP) clinical policy development process, including expert review, and is based on the existing literature; where literature was not available, consensus of emergency physicians was used.

## Rating Scheme for the Strength of the Recommendations

Clinical findings and strength of recommendations regarding patient management were made according to the following criteria:

### Strength of Recommendations

Level A recommendations. Generally accepted principles for patient management that reflect a high degree of clinical certainty (i.e., based on strength of evidence Class I or overwhelming evidence from strength of evidence Class II studies that directly address all of the issues).

Level B recommendations. Recommendations for patient management that may identify a particular strategy or range of management strategies that reflect moderate clinical certainty (i.e., based on strength of evidence Class II studies that directly address the issue, decision analysis that directly addresses the issue, or strong consensus of strength of evidence Class III studies).

Level C recommendations. Other strategies for patient management that are based on Class III studies, or in the absence of any adequate published literature, based on panel consensus.

There are certain circumstances in which the recommendations stemming from a body of evidence should not be rated as highly as the individual studies on which they are based. Factors such as heterogeneity of results, uncertainty about effect magnitude and consequences, and publication

bias, among others, might lead to such a downgrading of recommendations.

## Cost Analysis

A formal cost analysis was not performed and published cost analyses were not reviewed.

## Method of Guideline Validation

External Peer Review

Internal Peer Review

## Description of Method of Guideline Validation

Expert review comments were received from emergency physicians, members of the American College of Emergency Physicians (ACEP) Emergency Ultrasound Section, and individual members of the American College of Obstetricians and Gynecologists. Their responses were used to further refine and enhance this policy; however, their responses do not imply endorsement of this clinical policy.

This clinical policy was approved by the ACEP Board of Directors, April 10, 2012.

This guideline is supported by the Emergency Nurses Association, June 21, 2012.

## Evidence Supporting the Recommendations

### Type of Evidence Supporting the Recommendations

The type of supporting evidence is identified and graded for each recommendation (see the "Major Recommendations" field).

## Benefits/Harms of Implementing the Guideline Recommendations

### Potential Benefits

Appropriate evaluation, diagnosis, and management of selected critical issues in patients in early pregnancy

### Potential Harms

- Treatment failure, with rupture of the ectopic pregnancy, is one of the most serious complications of methotrexate therapy.
- Other side effects of methotrexate

## Contraindications

### Contraindications

Methotrexate therapy is contraindicated in patients with alcoholism, immunodeficiency, peptic ulcer, or active disease of the lungs, liver, kidneys, or hematopoietic system and relatively contraindicated in patients with an ectopic gestational sac larger than 3.5 cm or with embryonic cardiac motion observed on ultrasound.

# Qualifying Statements

## Qualifying Statements

- This policy is not intended to be a complete manual on the evaluation and management of patients with abdominal pain or vaginal bleeding in early pregnancy but rather a focused examination of critical issues that have particular relevance to the current practice of emergency medicine.
- It is the goal of the Clinical Policies Committee to provide an evidence-based recommendation when the medical literature provides enough quality information to answer a critical question. When the medical literature does not contain enough quality information to answer a critical question, the members of the Clinical Policies Committee believe that it is equally important to alert emergency physicians to this fact.
- Recommendations offered in this policy are not intended to represent the only diagnostic and management options that the emergency physician should consider. The American College of Emergency Physicians clearly recognizes the importance of the individual physician's judgment. Rather, this guideline defines for the physician those strategies for which medical literature exists to provide support for answers to the crucial questions addressed in this policy.
- Policy statements and clinical policies are the official policies of the American College of Emergency Physicians (ACEP) and, as such, are not subject to the same peer review process as articles appearing in the print journal. Policy statements and clinical policies of ACEP do not necessarily reflect the policies and beliefs of Annals of Emergency Medicine and its editors.

## Implementation of the Guideline

### Description of Implementation Strategy

An implementation strategy was not provided.

## Institute of Medicine (IOM) National Healthcare Quality Report Categories

### IOM Care Need

Getting Better

### IOM Domain

Effectiveness

Timeliness

## Identifying Information and Availability

### Bibliographic Source(s)

Hahn SA, Lavaras EJ, Mace SE, Napoli AM, Fesmire FM, American College of Emergency Physicians. Clinical policy: critical issues in the initial evaluation and management of patients presenting to the emergency department in early pregnancy. Ann Emerg Med. 2012 Sep;60(3):381-90.e28. [55 references] [PubMed](#)



## Adaptation

Not applicable: The guideline was not adapted from another source.

## Date Released

2003 Jan (revised 2012 Sep)

## Guideline Developer(s)

American College of Emergency Physicians - Medical Specialty Society

## Source(s) of Funding

American College of Emergency Physicians

## Guideline Committee

American College of Emergency Physicians (ACEP) Clinical Policies Subcommittee on Early Pregnancy

ACEP Clinical Policies Committee

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*Members of the Clinical Policies Subcommittee on Early Pregnancy:* Sigrid A. Hahn, MD (*Subcommittee Chair*); Eric J. Lavonas, MD; Sharon E. Mace, MD; Anthony M. Napoli, MD; Francis M. Fesmire, MD (*Committee Chair*)

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## Financial Disclosures/Conflicts of Interest

Relevant industry relationships: There were no relevant industry relationships disclosed by the subcommittee members. Relevant industry relationships are those relationships with companies associated with products or services that significantly impact the specific aspect of disease addressed in the critical question.

## Guideline Endorser(s)

Emergency Nurses Association - Professional Association

## Guideline Status

This is the current release of the guideline.

This guideline updates a previous version: Clinical policy: critical issues in the initial evaluation and management of patients presenting to the emergency department in early pregnancy. Ann Emerg Med 2003 Jan;41(1):123-33.

## Guideline Availability

Electronic copies: Available in Portable Document Format (PDF) from the [American College of Emergency Physicians Web site](#)

ACEP clinical policies are available for mobile applications at the [ACEP Web site](#) .

## Availability of Companion Documents

None available

## Patient Resources

None available

## NGC Status

This NGC summary was completed by ECRI on June 5, 2003. The information was verified by the guideline developer on July 18, 2003. This NGC summary was updated by ECRI Institute on September 28, 2012. The updated information was verified by the guideline developer on October 23, 2012.

## Copyright Statement

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